

LISTING OF CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in this application.

Listing of Claims:

1-35. (Canceled)

36. (Previously Presented) For use with a subterranean gas storage formation wherein gas is stored within pores of formation rock, a gas storage and production method comprising the steps of:

extending a production wellbore into the formation for withdrawing gas from the formation;

extending a separate storage wellbore into the same formation for injecting gas thereinto;

causing the production and storage wellbores to intersect at a wellbore junction; and

injecting gas into the formation through the separate storage wellbore.

37. (Previously Presented) The method of Claim 36 wherein:

the injection step is performed by injecting gas only through the storage wellbore, and

wherein the method further comprises the step of withdrawing gas only through the production wellbore.

38. (Previously Presented) For use with a subterranean gas storage formation wherein gas is stored within pores of formation rock, a gas storage and production method comprising the steps of:

extending a production wellbore into the formation for withdrawing gas from the formation;

extending a storage wellbore into the formation for injecting gas thereinto;

causing the production and storage wellbores to intersect at a wellbore junction;

injecting gas into the formation through the storage wellbore;

extending a main wellbore from the wellbore junction to the earth's surface;

positioning a tubular string in the main wellbore;

delivering gas to the storage wellbore via the tubular string for injection into the formation; and

delivering gas from the production wellbore via an annulus formed between the tubular string and the main wellbore for production to the earth's surface.

39. (Previously Presented) The method of Claim 36 further comprising the steps of:

extending a main wellbore from the wellbore junction to the earth's surface;

positioning a tubular string in the main wellbore;

delivering gas to the storage wellbore via the tubular string for injection into the formation; and

delivering gas from the production wellbore via the tubular string for production to the earth's surface.

40. (Previously Presented) The method of Claim 39 wherein:

the delivering steps are performed by alternately delivering gas to the storage wellbore via the tubular string, and delivering gas from the production wellbore via the tubular string.

41. (Previously Presented) The method of Claim 39 further comprising the step of:

connecting at least one valve to the tubular string, the valve providing communication between the tubular string and each of the storage and production wellbores.

42. (Previously Presented) The method of Claim 41 further comprising the step of:

causing the valve to alternately provide communication between the tubular string and each of the storage and production wellbores.

43. (Previously Presented) The method of Claim 42 further comprising the step of:

remotely controlling the valve.

44. (Previously Presented) The method of Claim 42 wherein:
there are at least two of the valves, and
the method further comprises the step of operating the valves in response to a direction of gas flow in the tubular string.

45. (Previously Presented) For use with a subterranean gas storage formation wherein gas is stored within pores of formation rock, a gas storage and production method comprising the steps of:

extending a production wellbore into the formation for withdrawing gas from the formation;

extending a storage wellbore into the formation for injecting gas thereinto;

causing the production and storage wellbores to intersect at a wellbore junction;

injecting gas into the formation through the storage wellbore;

extending a main wellbore from the wellbore junction to the earth's surface;

positioning a tubular string in the main wellbore;

delivering gas to the storage wellbore via an annulus formed between the tubular string and the main wellbore for injection into the formation; and

delivering gas from the production wellbore via the tubular string for production to the earth's surface.

46. (Previously Presented) For use with a subterranean gas storage formation wherein gas is stored within pores of formation rock, a gas storage and production method comprising the steps of:

extending a production wellbore into the formation for withdrawing gas from the formation;

extending a storage wellbore into the formation for injecting gas thereinto;

causing the production and storage wellbores to intersect at a wellbore junction;

injecting gas into the formation through the storage wellbore;

positioning a sand control screen in the production wellbore;

connecting a tubular string to the sand control screen and extending toward the wellbore junction;

positioning gravel about the screen in an annulus formed between the screen and the wellbore; and

positioning a retainer material in the annulus between the gravel and the wellbore junction, the retainer material preventing displacement of the gravel.

47. (Previously Presented) The method of Claim 46 wherein:

the retainer material positioning step is performed using a cementitious retainer material.

48. (Previously Presented) The method of Claim 46 wherein:
the retainer material positioning step is performed by flowing the
retainer material into the annulus via at least one ported collar
interconnected in the tubular string between the screen and the wellbore
junction.

49. (Previously Presented) The method of Claim 36 further
comprising the steps of:

extending a main wellbore from the wellbore junction to the earth's
surface;

positioning injection and production tubular strings in the main
wellbore;

delivering gas to the storage wellbore via the injection tubular string
for injection into the formation; and

delivering gas from the production wellbore via the production
tubular string for production to the earth's surface.

50. (Previously Presented) The method of Claim 49 wherein:
the step of positioning injection and production tubular strings is
performed by coaxially positioning the injection and production tubular
strings within the main wellbore.

51. (Previously Presented) The method of Claim 49 wherein:
the step of positioning injection and production tubular strings is
performed by positioning the injection tubular string within the
production tubular string in the main wellbore.

52. (Previously Presented) A method of storing and producing gas, the method comprising the steps of:

extending a main wellbore from the earth's surface to a wellbore junction;

extending a storage wellbore from the wellbore junction into a gas storage formation;

extending a separate production wellbore from the wellbore junction into the same gas storage formation;

injecting gas from the main wellbore into the gas storage formation via the storage wellbore; and

withdrawing gas from the gas storage formation into the main wellbore via the separate production wellbore.

53. (Previously Presented) The method of Claim 52 further comprising the step of:

causing at least one of the storage and production wellbores to be an extension of the main wellbore.

54. (Previously Presented) The method of Claim 52 further comprising the steps of:

positioning a tubular string in the main wellbore; and

causing the tubular string to alternately deliver gas to the storage wellbore and deliver gas from the production wellbore to the earth's surface.

55. (Previously Presented) The method of Claim 54 further comprising the steps of:

connecting a valve to the tubular string; and

causing the valve to alternately provide communication between the production wellbore and the tubular string, and between the storage wellbore and the tubular string.

56. (Previously Presented) A method of storing and producing gas, the method comprising the steps of:

extending a main wellbore from the earth's surface to a wellbore junction;

extending a storage wellbore from the wellbore junction into a gas storage formation;

extending a production wellbore from the wellbore junction into the formation;

injecting gas from the main wellbore into the formation via the storage wellbore;

withdrawing gas from the formation into the main wellbore via the production wellbore;

positioning a tubular string in the main wellbore;

causing the tubular string to alternately deliver gas to the storage wellbore and deliver gas from the production wellbore to the earth's surface; and

connecting first and second valves to the tubular string, the first valve opening in response to a pressure differential from the tubular string to the storage wellbore, and the second valve opening in response to a pressure differential from the production wellbore to the tubular string.

57. (Previously Presented) A method of storing and producing gas, the method comprising the steps of:

extending a main wellbore from the earth's surface to a wellbore junction;

extending a storage wellbore from the wellbore junction into a gas storage formation;

extending a production wellbore from the wellbore junction into the formation;

injecting gas from the main wellbore into the formation via the storage wellbore;

withdrawing gas from the formation into the main wellbore via the production wellbore;

positioning a sand control screen in the production wellbore; and

disposing gravel in an annulus formed between the screen and the production wellbore.

58. (Previously Presented) The method of Claim 57 further comprising the step of:

disposing cement in the annulus, the cement abutting the gravel and preventing displacement of the gravel axially relative to the annulus.

59. (Previously Presented) The method of Claim 52 further comprising the step of:

positioning in the main wellbore first and second tubular strings respectively operable to deliver gas to the storage wellbore and receive gas from the production wellbore.

60. (Previously Presented) The method of Claim 59 wherein:

the step of positioning first and second tubular strings in the main wellbore is performed in a manner concentrically disposing the first and second tubular strings in the main wellbore.

61. (Previously Presented) The method of Claim 59 wherein:

the step of positioning first and second tubular strings in the main wellbore is performed in a manner positioning the first tubular string within the second tubular string in the main wellbore.

62. (Previously Presented) A method of storing and producing gas, the method comprising the steps of:

extending a main wellbore from the earth's surface to a wellbore junction;

extending a storage wellbore from the wellbore junction into a gas storage formation;

extending a production wellbore from the wellbore junction into the formation;

injecting gas from the main wellbore into the formation via the storage wellbore;

withdrawing gas from the formation into the main wellbore via the production wellbore;

positioning a tubular string within the main wellbore;

causing the tubular string to deliver gas to the storage wellbore; and

causing an annulus between the tubular string and the main wellbore to receive gas from the production wellbore.

63. (Previously Presented) The method of Claim 62 further comprising the step of:

causing gas flowing from the production wellbore to the earth's surface to flow substantially entirely through the annulus.

64. (Previously Presented) For use with a subterranean gas storage formation wherein gas is stored within pores of formation rock, a gas storage and production method comprising the steps of:

extending a production wellbore into the formation for withdrawing gas from the formation;

extending a separate storage wellbore into the same formation for injecting gas thereinto;

causing the production and storage wellbores to intersect at a wellbore junction;

utilizing the production wellbore, during substantially all periods of usage thereof, only to withdraw gas from the formation; and

utilizing the injection wellbore, during substantially all periods of usage thereof, only to inject gas into the formation.

65. (Previously Presented) A method of storing and producing gas, the method comprising the steps of:

extending a main wellbore from the earth's surface to a wellbore junction;

extending a storage wellbore from the wellbore junction into a gas storage formation;

extending a separate production wellbore from the wellbore junction into the same gas storage formation; and

during substantially all periods of use thereof, utilizing the main wellbore, the storage wellbore and the production wellbore in a manner selectively injecting gas into the gas storage formation from the main wellbore only via the storage wellbore, or withdrawing gas from the gas storage formation into the main wellbore only via the production wellbore.